

**ABSTRACT OF THE DISCLOSURE**

[1060] We introduce *obstruction-freedom*—a new non-blocking condition for shared data structures that weakens the progress requirements of traditional nonblocking conditions, and as a result admits solutions that are significantly simpler and more efficient in the typical case of low contention. We demonstrate the merits of obstruction-freedom by showing how to implement an *obstruction-free* double-ended queue that has better properties than any previous nonblocking deque implementation of which we are aware. The beauty of obstruction-freedom is that we can modify and experiment with the contention management mechanisms without needing to modify (and therefore reverify) the underlying non-blocking algorithm. In contrast, work on different mechanisms for guaranteeing progress in the context of *lock-free* and *wait-free* algorithms has been hampered by the fact that modifications to the "helping" mechanisms has generally required the proofs for the entire algorithm to be done again.